

**Amendments to the Claims:**

The following listing of claims will replace all prior versions, and listings, of claims in the application:

1. (Currently Amended) A process for the processing of waste substances, in particular of residual waste, comprising
  - a mechanical processing of the residual waste
  - a biological processing of the residual waste, by supplying process water ~~(10.2, 9.4, 14.2.11)~~ for dissolving and/or discharging organic constituents, and
  - processing the process water ~~(4.3, 14.1.10, 14.1.11)~~ charged with organic matter by separating off organic constituents from the process water ~~(4.3, 14.1.10, 14.1.11)~~, characterized in that
 

the process water processing step contains a physico-chemical processing ~~(PCP, 21, 22, 23, 24)~~ for denitrification of the process water ~~(9.6)~~ freed from organic constituents, wherein the PCP includes a reverse osmosis ~~(23)~~ for separating out pollutants, salts, etc., upstream of which an ultrafiltration and/or mechanical fine sifting ~~(13)~~ is arranged.
2. (Currently Amended) The process in accordance with claim 1, wherein the PCP includes at least one stripper means ~~(21, 22, 22')~~ for separating out ammonia gas dissolved in the process water ~~(16)~~.
3. (Currently Amended) The process in accordance with claim 2, wherein the process water ~~(20)~~ is injected into a stripper column ~~(22, 22')~~ and there subjected to the injection of air in a counter-flow.
4. (Currently Amended) The process in accordance with claim 3, comprising a catalyst column ~~(22.8)~~ for converting the ammonia gases into nitrogen and water.
5. (Currently Amended) The process in accordance with claim 2, wherein the process water ~~(20.1)~~ is injected into a stripper column ~~(21)~~ and there subjected to the injection of saturated vapor in a counter-flow.
6. (Currently Amended) The process in accordance with claim 5, comprising a cooler ~~(24)~~ for converting the ammonia gases into nitrogen and water.
7. (Currently Amended) The process in accordance with claim 2, wherein stripper means with introduction of air ~~(22)~~ are arranged in series with second stripper means with introduction of air ~~(22')~~ or stripper means with injection of saturated vapor ~~(21)~~.

8. (Currently Amended) The process in accordance with claim 2, wherein lye ~~(19)~~ is added to the process water ~~(18)~~ upstream from the stripper means ~~(21, 22, 22')~~.
9. (Currently Amended) The process in accordance with claim 1, wherein the biological processing takes place in a percolation plant ~~(4)~~, a pulper plant ~~(5)~~, or in a fermentation plant ~~(6)~~.
10. (Currently Amended) The process in accordance with claim 9, wherein an ultrafiltration ~~(13)~~ of the process water ~~(9.6)~~ precedes the PCP plant ~~(21, 22, 23-24)~~.
11. (Currently Amended) The process in accordance with claim 1, wherein the processing of the process water ~~(9.3)~~ includes a precipitation of chlorides, phosphates, etc.
12. (Currently Amended) The process in accordance with claim 1, wherein the biological processing of the process water ~~(9.3)~~ takes place in a hybrid reactor ~~(9)~~ including a solid bed ~~(9.2)~~ which comprises sludge discharge means ~~(9.8)~~ and/or means ~~(9.11)~~ for destroying a surface scum.
13. (Currently Amended) The process in accordance with claim 12, comprising means ~~(9.13)~~ for the injection of air/oxygen ~~(9.13.2)~~ into the head of the hybrid reactor ~~(9)~~.
14. (Currently Amended) The process in accordance with claim 12, wherein the hybrid reactor ~~(9)~~ includes means for pressing in gas ~~(9.15)~~ so as to periodically subject a forming bed of sludge ~~(9.2.1)~~ and the solid bed ~~(9.2)~~ to shear forces.
15. (Currently Amended) The process in accordance with claim 12, wherein the forming biogas is desulfurized in a desulfurization chamber ~~(9.12)~~ of the hybrid reactor ~~(9)~~.
16. (Currently Amended) The process in accordance with a combination containing claim 10, wherein a part of the solids/water mixture ~~(16.1)~~ occurring in the ultrafiltration ~~(13)~~ is added to the precipitation in a downstream location as inoculating sludge ~~(16.3)~~.
17. (Currently Amended) The process in accordance with claim 1, wherein the processing of the process water ~~(4.3)~~ contains a flotation separation ~~(14)~~ for discharging solids.
18. (Currently Amended) The process in accordance with claim 1, wherein the processing of the process water ~~(14.1-10)~~ contains a sand washing stage ~~(14.2)~~ upstream from the biological process water processing and/or a sifting stage ~~(14.3)~~ for separating out floating and fiber substances.
19. (Currently Amended) The process in accordance with claim 1, wherein a sand sedimentation and precipitation plant ~~(25)~~ for the sedimentation of micro-fine sand and for the precipitation of phosphates, inert substances, etc. is arranged downstream from the sand washing ~~(14)~~.

20. (Currently Amended) A hybrid reactor, in particular for performing the process in accordance with claim 1, comprising a solid bed~~(9.2)~~, sludge discharge means~~(9.8)~~, and means ~~(9.11)~~for destroying a surface scum, characterized in that the hybrid reactor ~~(9)~~ includes means for pressing in gas ~~(9.15)~~so as to periodically subject a forming bed of sludge ~~(9.2.1)~~and the solid bed ~~(9.2)~~to shear forces.

21. (Currently Amended) The hybrid reactor in accordance with claim 20, wherein a desulfurization chamber ~~(9.12)~~and injection means~~(9.13)~~ for injecting air/oxygen for a desulfurization of the forming biogas are provided.